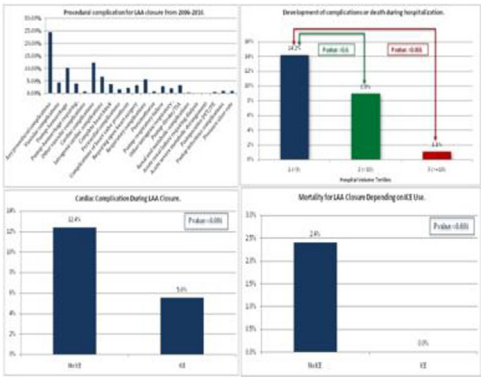

Conclusions: ICE and higher annual hospital volume are associated with lower complication rates. Cardiac and vascular complications remain the major concern for LAA closure.

TCT-682

Comparison of conventional surgery and transapical transcatheter approach for paravalvular leak closure in high risk patients: results from a single high volume institution.

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Background: Paravalvular leaks (PVL)affect up to 17% of all surgically implanted prosthetic valves. Reoperation is associated with high morbidity and mortality. Transcatheter transapical (TA) closure is an emerging alternative for selected high-risk patients with PVL. The aim of this study is to compare the in-hospital outcomes of patients who underwent surgery and TA-closure for PVL in our single-center experience.
Methods: From October 2000 and June 2013, 136 patients with PVL were treated in our Institution: 122 patients (89.7%%) underwent surgery (68% mitral-PVL; 32% aortic-PVL) and 14 patients (10.3%) underwent TA closure (all the pts had mitral PVL; 1 case had combined mitral and aortic PVLs). All the TA procedures were performed under general anesthesia in a hybrid operative room: in all but 1 case an Amplatzer Vascular Plug III device was utilized.
Results: Baseline features of the patients were comparable in terms of age (p=0.9), associated coronary artery disease (p=0.6), chronic renal failure (p=0.2), previous endocarditis (p=0.08), concomitant atrial fibrillation (p=0.4), while COPD was more prevalent in TA group (P=0.002). Log-EuroScore was 15±11% and 19±8% in surgical and TA group respectively (p=0.03). Most of the patients were in NYHA class III-IV (60% Vs 78%; p=0.1); 41% of surgical patients and 86% of TA patients were at their second of more reoperation (p=0.0001). Procedural success in TA group was 93% (1 conversion to surgery because of the dislocation of the device). In-hospital mortality was 10.6% in surgical group (all cardiac-related) and 0% in TA group (p=0.08). Mean LOS was 19 days for surgery and 9 days for TA (p=0.1). All the patients had less than moderate residual valve regurgitation after the procedure. Surgical treatment was identified as risk factor for in-hospital death at multivariate analysis (OR 1.6; p=0.04).
Conclusions: Transcatheter TA approach is a safe and effective therapeutic option in selected high-risk patients with PVL and it is associated with reduced risk of hospital mortality than surgical treatment, in spite of higher predicted risk. Further studies are needed to determine the long-term results of the two procedures.

TCT-683

Pulmonary artery denervation to treat pulmonary arterial hypertension: a single-center, prospective, first-in-man PADN-1 study

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Background: Baroreceptors and sympathetic nerve fibers are localized in or near the bifurcation area of the main PA. We previously demonstrated that PADN completely abolished the experimentally elevated PA pressure responses to occlusion of the left interlobar pulmonary artery.
Methods: Out of a total of 21 patients with IPAH, 13 patients received the PADN procedure, the other 8 patients who refused the PADN procedure were assigned to the control group. PADN was performed at the bifurcation of the main PA, and at the ostial right and left PA. Serial echocardiography, right heart catheterization, and a 6-minute walk test (6MWT) were performed. The primary endpoints were the change of pulmonary artery pressure (PAP), tricuspid excursion (Tei) index, and 6MWT at 3-months follow-up.
Results: Compared with the control group, at 3 months follow-up, the patients who underwent the PADN procedure showed significant reduction of mean PAP (from 55±5 mmHg to 36±5 mmHg, p<0.01), significant improvement of the 6MWT (from 324±21 m to 491±38 m, p<0.006) and of the Tei index (from 0.3±0.04 to 0.50±0.04, p<0.001).
Conclusions: We report for the first time the effect of PADN on functional capacity and hemodynamics in patients with IPAH not responding optimally to medical therapy. Further randomized study is required to confirm the efficacy of PADN. (chiCTR-ONC-12002085)

TCT-684

OCT As A Rule Out Test For Thromboembolism In Pulmonary Arterial Hypertension: Insights From A OCT Study Of The Pulmonary Vascular Tree.

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Background: Vitamin K antagonists (VKA) such as warfarin are recommended in the Group 1 Pulmonary Hypertension (PH) cohort based on poor quality evidence. Among proposed mechanisms of benefit is that endothelial dysfunction present in patients with Pulmonary Arterial Hypertension (PAH) causes abnormalities in coagulation factors, antithrombotic factors and fibrinolytic system, which finally leads to a prothrombotic state in patients with PAH. This is supported by the fact that laminar thrombus has been found in the typical plexiform lesions that affects small muscular arteries and supernumerary pulmonary arteries. However, unlike Chronic Thromboembolic Pulmonary Hypertension (CTEPH) the evidence base in support of anticoagulation in patients with PAH remains weak. We normally rely on non-invasive tests such as CT Pulmonary Angiography (CTPA), Ventilation-Perfusion Scan (VQ), MRI and conventional pulmonary angiography to differentiate between CTEPH and PAH. What would happen if despite using these modalities, we are misclassifying patients with distal diffuse CTEPH as PAH?
Methods: 11 consecutive patients diagnosed with PAH were enrolled in an ethics approved study to undergo OCT imaging of their pulmonary arteries following routine right heart catheterisation (RHC) at the Royal Free London NHS Foundation Trust in London. A 6Fr Guidant™ Swan-Ganz type Balloon Catheter was situated and wedged into a subsegmental pulmonary vessel. Through this catheter a LightLab®ImageWire Cardiovascular imaging wire was passed into the distal vessel. An automated pullback of the vessel was obtained the data transferred and stored on a workstation for off-line analysis. Previous studies of these patients to rule out thromboembolic disease (CTPA, VQ and conventional pulmonary angiography) were checked and reviewed again by two independent and blinded nuclear and radiology consultants.
Results: 4 of these 11 patients were found to have thrombus and/or webs (indicative of recanalised thrombus) suggesting CTEPH.
Conclusions: OCT imaging of the pulmonary vascular tree allows for the detection of CTEPH patients previously diagnosed as PAH. These novel findings, are potentially important as the role of VKA in PAH is under discussion.

TCT-685

High Procedure Success Rate in Device Closure of Atrial Septal Defect with Multiple Rim Deficiencies

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Background: Adequate septal rim is an important factor for device closure of atrial septal defect (ASD). As little is known about the procedural completion in ASD patients with multiple rim deficiencies, we aimed to evaluate the validity of device closure for these patients.
Methods: Between September 2007 and May 2013, 372 consecutive adult ASD patients (mean 54 ± 17 years) were attempted for device closure using Amplatzer septal occluder. According to TEE findings, rim deficiency (<5 mm) was defined as supero-anterior, infero-anterior, supero-posterior, and infero-posterior rim deficiencies. Patients were divided into three groups: "sufficient" group, sufficient rim (n=77); "single" group, 1 rim deficiency including 9 patients with infero-posterior rim deficiency (n=268); "multiple" group, more than 1 rim deficiencies (n=27). Procedural success was defined as device implantation with no in-hospital serious adverse events.

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